

## ON THE NOMENCLATURE OF A HYLID TREE FROG FROM QUEENSLAND

The nomenclature of Australian frogs currently is labile and a number of areas of disagreement need to be addressed before any degree of stability can be achieved. One of the numerous issues involved is the correct name to be applied to a single species of hylid tree frog occurring in North Queensland. At present three names are used in the literature; *Litoria eucnemis* (Lonnberg)<sup>1-2</sup>, *L. genimaculata* (Horst)<sup>3-4</sup> and *L. serrata* (Andersson)<sup>5-6</sup>.

*Litoria serrata* was described in 1916<sup>7</sup> from specimens taken at Atherton, Carrington and Malanda, and was referred to the synonymy of *L. eucnemis* of New Guinea by Loveridge<sup>8</sup>. The action was supported by Copland<sup>9</sup> but was questioned by Moore<sup>10</sup>. Because of this uncertainty the type specimens were reexamined, compared with additional series and considered conspecific by Tyler<sup>11</sup>.

Subsequent use of the name *L. serrata* for the Australian population<sup>12</sup> follows Cogger<sup>13</sup> who adopted it in the first edition of his field guide, with the comment "It has recently been regarded as conspecific with *Litoria eucnemis*, a species from the Huon Peninsula in New Guinea." Cogger clearly believed that this was not the case, but did not tender the evidence upon which he based his opinion.

More recently the specific identity of the Australian population has been changed<sup>3</sup> to *L. genimaculata*, a species described from New Guinea<sup>14</sup>. The change is justified by the authors only by the comment "*L. serrata* of Cogger (1975)." The name *L. genimaculata* has now been incorporated in a list of the amphibian fauna of Queensland<sup>3</sup>.

It is apparent from the above summary that recent nomenclatural changes have been implemented without the presentation of any substantive evidence in support of those changes.

In New Guinea *L. eucnemis* and *L. genimaculata* are regarded as distinct but closely related species differing in adult size and maximum extent of interdigital webbing<sup>15-19</sup>.

Tyler<sup>15</sup> considered the two species to be allopatric but more recently they have been demonstrated to be sympatric over a portion of their geographic range, and readily distinguishable by differences in male call<sup>16</sup>. Both species produce calls described as "soft"<sup>15</sup>, no doubt caused by their lack of vocal sacs<sup>19, 20</sup>.

An audiospectrogram of a call of *L. genimaculata* provided by Zweifel<sup>18</sup> depicts a series of nine notes emitted at a rate of approximately 6/sec. In contrast the call of *L. eucnemis* is more complex and described as "groups of low, soft, chuckling notes and finished . . . with several louder, shorter pulsed calls"<sup>16</sup>. Zweifel's figures of the call of each species indicate that there is no possibility of *L. eucnemis* and *L. genimaculata* being conspecific.

The call of an Australian specimen (Queensland National Parks and Wildlife Service collection N 32472) from Weather Station Creek is biphasic with pulse repetition rates of 35.8 and 52.5 pulses sec<sup>-1</sup> respectively. Comparable values from Zweifel's<sup>18</sup> recording of *L. eucnemis* from New Guinea are 23.5 and 165 pulses sec<sup>-1</sup>. Although there is similarity in the low pulse rate calls, they differ markedly in the number of pulses, 30 in the Australian frog compared with 16 in the New Guinea specimen. In the case of the high pulse rate calls the differences in pulse repetition rates are conspicuous whereas the number of pulses (17 and 23 respectively) differ only slightly.

More and improved recordings from Australia and New Guinea are required to resolve the issue of whether the allopatric populations variously known as *L. eucnemis* and *L. serrata* are conspecific.

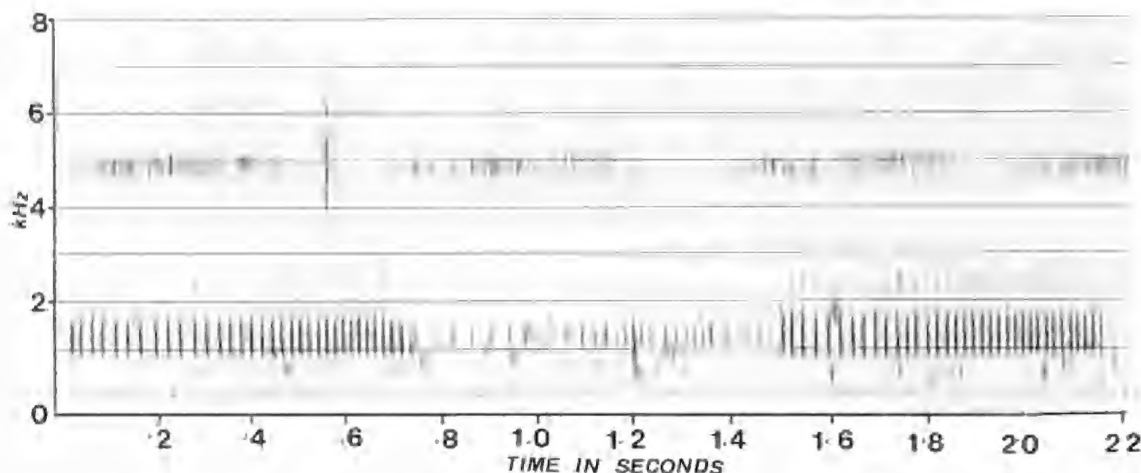


Fig. 1. Audiospectrogram (300 Hz filter) of calls of *Litoria eucnemis* recorded by K. R. McDonald. Air temp. 23°C. Tape—Dept Zoology, University of Adelaide, K. McD (10). Analysed on a Kay Digital Sonagraph Model 7800.

Nevertheless, there is no justification for considering *L. genimaculata* a member of the Australian fauna. If *L. genimaculata* does occur in Australia it will be an

addition to the fauna and not a nomenclatural replacement of *L. eucnemis*.

We are indebted to Mr K. R. McDonald for providing the tape recording from which Fig. 1 was prepared.

- <sup>1</sup>Tyler, M. J. (1976) "Frogs." (Collins, Sydney).
- <sup>2</sup>Barker, J. & Grigg, G. (1977) "A field guide to Australian frogs." (Rigby, Adelaide).
- <sup>3</sup>Kikkawa, J., Monteith, G. B. & Ingram, G. (1981) *In* A. Keast (ed.), "Ecological biogeography of Australia." (W. Junk, The Hague).
- <sup>4</sup>Ingram, G. J. & Covacevich, J. (1981) *Mem. Qld Mus.* 20, 291-306.
- <sup>5</sup>Cogger, H. G., Cameron, E. & Cogger, H. (1983) "Zoological catalogue of Australia. Vol. 1. Amphibia and Reptilia." (Australian Government Publishing Service, Canberra).
- <sup>6</sup>Dennis, A. & Trenerry, M. (1984) *N. Qld Nat.* (184), 2-9.
- <sup>7</sup>Andersson, L. G. (1916) *Vetensk. Akad. Handl.* 52(9), 1-20.
- <sup>8</sup>Loveridge, A. (1935) *Bull. Mus. Comp. Zool. Harvard* 78, 1-60.
- <sup>9</sup>Copland, S. J. (1957) *Proc. Linn. Soc. N.S.W.* 82(1), 9-108.
- <sup>10</sup>Moore, J. A. (1961) *Bull. Amer. Mus. Nat. Hist.* 121(3), 149-386.
- <sup>11</sup>Tyler, M. J. (1965) *Proc. Zool. Soc. Lond.* 145(1), 91-106.
- <sup>12</sup>Dingle, J. G. (1979) "Checklist of Queensland native animals." Part 1. Amphibians, reptiles and mammals. (Queensland Agric. Coll., Lawes.) (Mimeo).
- <sup>13</sup>Cogger, H. G. (1975) "Reptiles and amphibians of Australia." (Reed, Sydney).
- <sup>14</sup>Horst, R. (1883) *Notes Leyden Mus.* 5(22), 235-244.
- <sup>15</sup>Tyler, M. J. (1968) *Zool. Verhandl.* (96), 1-203.
- <sup>16</sup>Menzies, J. I. (1976) "Handbook of common New Guinea frogs." Wau Ecology Institute Handbook No. 1. (Wau, Papua New Guinea).
- <sup>17</sup>Tyler, M. J. & Davies, M. (1978) *Aust. J. Zool. Suppl. Ser.* (63), 1-47.
- <sup>18</sup>Zweifel, R. G. (1980) *Bull. Amer. Mus. Nat. Hist.* 165(5), 387-434.
- <sup>19</sup>Tyler, M. J. (1971) *Univ. Kansas Publ. Mus. Nat. Hist.* 19(4), 319-360.
- <sup>20</sup>Tyler, M. J. (1972) *Zool. Anz.* 189, 331-336.

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